

REMARKS

Claims 1-53 are pending. An Information Disclosure Statement is being filed concurrently herewith. No new matter is presented.

Claims 13, 19-21, 42 and 47-49 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This rejection is respectfully traversed.

In support of the § 112 rejection, the Office Action states that it is unclear what is meant by “resonance associative map” and “baseline vigilance parameter.” The specification notes at page 7, lines 13-14 that the term “adaptive resonance associative map” or “ARAM” is well known in the art as described in “Neural Networks”, Vol. 8, No. 3, pp. 437-446 (1995), which publication is incorporated by reference into the specification. The specification also discloses that an ARAM is a family of neural network models that performs incremental supervised learning of recognition categories and multidimensional maps of both binary and analog patterns (see specification, page 7, lines 29-31). Accordingly, the term resonance associate map is not only a recognized term in the art, its meaning is made clear in the specification.

The term “vigilance parameter” is defined in the paragraph beginning on page 8, line 7, and the term “baseline vigilance parameter” is discussed on page 10, lines 22-23. Therefore, the term “baseline vigilance parameter” is fully defined by the specification. In view of the foregoing, Accordingly, Applicant respectfully requests that the rejection under §112 be withdrawn.

Claims 1-18, 22-46 and 50-53 were rejected under 35 U.S.C. § 102(b) as being anticipated by Herz (U.S. Patent 5,754,938). This rejection is respectfully traversed.

Claim 1 recites “a) grouping units of information into clusters based on similarities to create a cluster structure; and b) personalizing said cluster structure according to user knowledge and preferences.” In other words, the cluster structure is modified according to user knowledge and preferences after the clusters are generated. Herz fails to teach or suggest these features.

Herz is directed to customized identification of desirable objects. Specifically, the system disclosed in Herz constructs a target profile for each target object and a target profile interest summary for each user. By measuring the similarities among the target profiles and the target profile interest summaries, the Herz system provides key functionalities, including:

1. Filtering of objects based on user profile and relevance feedback (col. 7, line 9–col. 7, line 27 and col. 17, line 15–col. 17, line 44);
2. Clustering/groupings of objects based on similarities into a hierarchical cluster structure (col. 7, line 27–col. 7, line 44); and
3. Scanning of cluster hierarchy using a search profile to identify desired clusters of targets with profiles most similar to search profile (col. 25 lines 2-45).

Clustering of objects is well known in the art, and Herz discloses a traditional clustering technique that generates groupings of objects (see col. 22, line 65 - col. 23, line 10). In contrast, Herz is completely silent with respect to modifying the clusters after they are generated according to user knowledge and preferences, as required by claim 1.

Similarly, the filtering of information based on user profiles as described in Herz is also well known in the art. However, claim 1 does not use the user's preferences to filter objects as described in Herz at col. 17, lines 15-44. Instead, claim 1 requires that the cluster structure generated by clustering algorithms be modified based on the user's preferences.

Although the present invention and Herz both make use of user profiles, the user profiles disclosed by Herz consists of target profile interest summary and access control instructions. In sharp contrast, the user profile recited in claim 1 refers to a personalized cluster structure, indicating a user's preference in organizing information.

In short, Herz (at col. 17, lines 15-44), discloses a filtering system that searches and identifies objects of interests based on a user's profile, and makes use of relevant feedback to refine

its knowledge of a user's interests. Where the user preference in Herz relates to preferred **content**, the user preference in the pending claims relates to preferred **organization**. Therefore, the features of claim 1 are not taught or suggested by Herz. The claims which depend from claim 1 contain all the elements and limitations of claim 1 and therefore are similarly patentable over Herz.

Claim 27, in addition to reciting the features discussed above in connection with claim 1, also recites "a user interface," which refers to the interface in which a user can view and manipulate cluster structures generated by the initial clustering process. While Herz discloses an interface for viewing the information clustering tree, it does not disclose an interface for modifying it (col. 7, lines 57-60). In claim 27, the term "a knowledge base for storing said cluster structure" refers to storing the personalized/modified cluster structure. Herz discloses storing user profiles containing target profile interest summary and control access instructions (col. 32, lines 34-44). Thus, the features of claim 27 are not taught or suggested by Herz. The claims which depend from claim 27 contain all the elements and limitations of claim 27 and therefore are similarly patentable over Herz.

Claim 3 recites "said personalizing comprises creating at least one new information cluster." In other words, new information clusters are created during the personalization process in which a user modifies the cluster structure. Claim 29 is similar. Herz discloses a hierarchical clustering process, commonly known as Agglomerative Hierarchical Clustering (col. 24, lines 13-18). Herz does not disclose creating new information clusters during the personalization process in which a user modifies the cluster structure. Accordingly, these claims are patentable over Herz by virtue of its additional limitations.

Claim 4, 8, 30 and 35, all recite that the personalizing process further comprise labeling each information cluster. In other words, one or more clusters generated by the clustering methods are labeled during user personalization of cluster structure. Herz discloses a sequential hybrid method consisting of k-means followed by supervised clustering, making use of the knowledge of who read what to do clustering (col. 24, lines 2-10). This does not correspond to the requirements of claims 4, 8, 30 and 35.

Claims 5, 9, 31 and 36 all require that the personalizing process further comprise merging information clusters, which refers to the merging of clusters during the user personalization process where a user merges two or more clusters containing similar information into a large cluster. Herz discloses a system for customized electronic identification of desirable objects allow articles to be grouped into clusters and the clusters to be grouped and merged into larger and larger clusters. (col. 7, lines 35-39). Herz does not disclose the features of claims 5, 9, 31 and 36.

Claims 6, 10, 32 and 37 require that the personalizing process further comprise splitting at least one information cluster, which refers to splitting of a cluster into two or more smaller clusters by a user during the personalization process. Herz discloses a process in which clusters are divided into smaller clusters during automatic hierarchical clustering (col. 24, lines 12-18). Herz does not disclose the features of claims 6, 10, 32 and 37.

Claims 7, 11, 33 and 38 require that the personalizing process further comprise storing the cluster structure in a knowledge base. Herz, on the other hand, discloses storing a user profile, a target profile interest summary, and access control instructions (col. 32, lines 34-44). Herz does not disclose storing the cluster structure in a knowledge base. Therefore, Herz does not disclose the features of claims 7, 11, 33 and 38.

Claims 25, 50 and 52 require retrieving the cluster structure, initializing the information clustering system using the retrieved cluster structure and analyzing new clusters. In other words, the retrieved cluster structure is used to organize new information and identify new clusters (previously not in the cluster structure) containing novel information. Herz, on the other hand, discloses scanning a hierarchical tree to identify target objects (col. 25, lines 22-31) and a hierarchical clustering process (col. 24, 13-18). Therefore, Herz does not disclose the features of claims 25, 50 and 52.

With respect to claims 14 and 41, the term “wherein said user-configurable information clustering system incorporates user knowledge and preferences for information clustering” refers to the use of a user’s knowledge and preference to influence the organization of the information, in

terms of cluster structure. Herz, on the other hand, discloses the use of knowledge and preference through relevance feedback to improve the performance of filtering or identifying desired objects (col. 17, lines 15-44). Therefore, Herz fails to teach or suggest the features of claims 14 and 41.

With respect to claim 15, the term “user interface” refers to one in which a user can view and manipulate the cluster organization. Herz, on the other hand, discloses a user interface for viewing the hierarchical cluster structure, but not for modifying it (col. 7, lines 57-60). Therefore, Herz fails to teach or suggest the features of claim 15.

With respect to claims 17 and 45, the term “preference vector” indicates the preferred groupings or organization of the clusters. Herz, on the other hand, disclose target profiles of target objects (col. 23, lines 31-41). Therefore, the features of claims 17 and 45 are not taught or suggested by Herz.

With respect to claim 22, the term “retrieving said cluster structure to initialize said user-configurable information clustering system prior to clustering new information” refers to organizing new information into the personalized cluster structure. Herz, on the other hand, discloses searching the hierarchical tree using a target profile to identify objects with similar profiles (col. 25, lines 22-31). Therefore, the features of claim 22 are not taught or suggested by Herz.

With respect to claim 23, the Office Action asserts that all of the elements of claim 23 have been discussed in connection with claims 1, 4, 5 and 6. Thus, since it has been demonstrated above that the features of claims 1, 4, 5 and 6 are not taught or suggested by Herz, claim 23 is allowable for the same reasons.

With respect to claims 34 and 39, the term “retrieving the cluster structure” refers to retrieving the personalized cluster structure, indicating a user’s preferred structure for organizing information. Herz, on the other hand, discloses a database function that retrieves the target profile interest summary and access control instructions (col. 34, lines 28-35). Therefore, the features of claims 34 and 39 are not taught or suggested by Herz.

In view of the foregoing, Applicant respectfully submits that the outstanding rejection under 35 U.S.C. §102 rejection may properly be withdrawn.

Claims 19-21 and 47-49 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Herz in view of Register (U.S. Patent 5,371,807). This rejection is respectfully traversed.

Claims 19 and 46 recite “said classes or clusters have a coarseness which is controlled by a baseline vigilance parameter.” This term refers to a parameter that controls the size of the clusters. The parameter determines the disparity of the information in a cluster. Given a higher vigilance parameter, there will be a larger number of smaller clusters. Register teaches classifying an input text to a set of predefined categories based on the similarity scores of the keyword vector of the input text and the category profile vectors of the categories (col. 9, lines 25-40). The process involves using a threshold parameter for discarding categories that have similarity scores below a certain threshold value. The threshold parameter does not correspond to the claimed baseline vigilance parameter. Therefore, the features of claims 19 and 46 are not taught by Herz, Register, or any combination thereof.

Claims 20 and 48 recite “further comprising indication by a user of a preference for lower baseline vigilance parameter by selecting at least one unit of information from each of at least two clusters wherein the selected units of information are deemed by the user to be similar to each other.” This term refers to lowering of the vigilance parameter to the similarity between the two selected items so that two items will be grouped into a cluster after reclustering with the lower vigilance parameter value. Register discloses a method of discarding categories with similarity scores below a threshold value and further mechanisms for selecting from the list of categories above the threshold value (col. 10, lines 44-58). Therefore, the features of claims 20 and 48 are not taught by Herz, Register, or any combination thereof.

Claims 21 and 49 recite “further comprising indication by a user of a preference for a higher baseline vigilance parameter by selecting at least two units of information in a cluster, wherein said units of information are deemed by the user to be dissimilar to each other.” This term

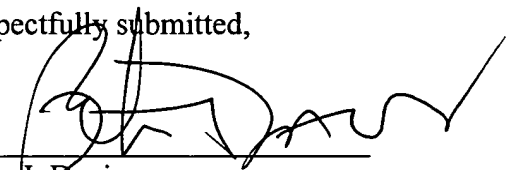
refers to raising of the vigilance parameter value to above the similarity score of the two items so that the two items will be grouped into different clusters after reclustering with the higher vigilance parameter value. Register, on the other hand, discloses a method for computing the similarity score between the keyword vector of an input vector and the category profile vector of each of the categories to which the input vector is to be classified (col. 8, lines 60-col. 9, lines 20). Therefore, the features of claims 21 and 49 are not taught by Herz, Register, or any combination thereof.

In view of the foregoing, Applicant respectfully submits that the outstanding rejection under 35 U.S.C. §103 rejection may properly be withdrawn.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 455392001200.

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